

# United States Patent [19]

Tamol et al.

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[54] METHOD AND APPARATUS FOR DRYING AND COOLING EXTRUDED TOBACCO-CONTAINING MATERIAL

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#### Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 900,715, Aug. 27, 1986, which is a continuation-in-part of Ser. No. 740,323, Jun. 3, 1985, Pat. No. 4,632,131, which is a continuation-in-part of Ser. No. 627,407, Jul. 3, 1984, abandoned, which is a continuation-in-part of Ser. No. 723,883, Apr. 16, 1985, Pat. No. 4,625,737, which is a continuation of Ser. No. 457,505, Dec. 30, 1982, Pat. No. 4,510,950.

[51] Int. Cl<sup>4</sup> ..... A24B 3/14

[52] U.S. Cl. ..... 131/375; 131/294

[58] Field of Search ..... 131/299, 294, 295, 375

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[57]

#### ABSTRACT

Apparatus and a method for processing hot, moist extruded tobacco-containing materials as they are continuously extruded by drying the extruded material rapidly with microwave energy, and then cooling the extruded material rapidly so that the surface temperature of the extruded material is decreased below the bulk temperature to provide the extruded material with an adequately rigid and stable dimensionally structure that can be formed into a smoking article. Microwave drying provides substantially uniform drying without case hardening the material. Cooling may occur by passing air at high velocity, refrigerated air or presenting a partial vacuum across the advancing extruded material, or contacting the material with cold contacting members or a cryogenic bath. Conventional maker devices can be used for forming smoking articles from the dried and cooled extruded material. The invention is useful particularly to process foamed, extruded materials into smoking articles which can be used with conventional cigarette maker equipment to produce large quantities of foamed, extruded tobacco-containing smoking articles having properties substantially equivalent to those of a conventional cigarette.

43 Claims, 1 Drawing Sheet

